

Service Hints



TH-P50U30M

Plasma Television

<PDP 2011 Model>

TH-P50/46/42U30M

TH-P50/42X30M

TH-P50/46/42U30P

TH-P50/42X30P

Troubleshooting Guide

- Ver 1.0-

This service hints is published for technicians and engineers for repair. And it gives you the information how to judge the defective board of PDP. In the future, we will improve the contents for more easy diagnostic and troubleshooting.

Please file and use this Service Hints together with the main service manual and other publications related to models.

WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.



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1. 2011 PDP Line up & Feature Comparison (2D model)

1. 2011 PDP Line up & Feature Comparison

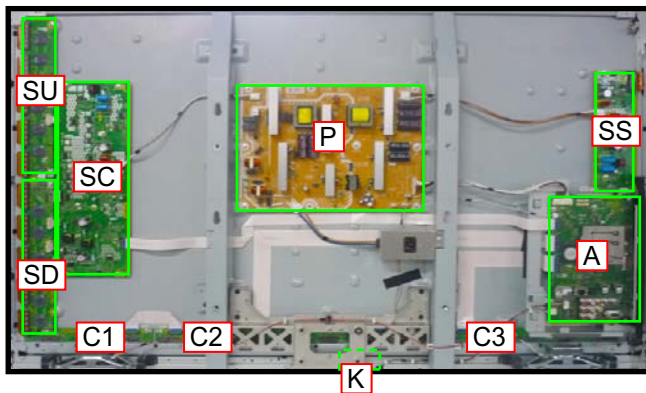
| | | U30 Series | X30 Series |
|------------|---------------------------|--|---|
| | |  |  |
| Picture | Size | 50/46/42 | 50/42 |
| | Full HD 3D | — | — |
| | Moving Picture Resolution | 900 lines | 720 lines |
| | THX Mode | — | — |
| | Resolution Enhancer | Y | — |
| | ISFccc | — | — |
| | 3D Colour Management | — | — |
| Sound | Speakers | Full-range x 2 (L, R) | Full-range x 2 (L, R) |
| Networking | HDMI Input | 3 (1 side, 2 rear) | 3 (1 side, 2 rear) |
| | Support Feature | Audio Return Channel (Input 2) | Audio Return Channel (Input 2) |
| | USB | 2 (side) | 2 (side) |
| | Skype Camera | — | — |
| | PC Input | Y | Y |
| | VIERA Connect (IPTV) | — | — |
| | Wireless LAN Adaptor | WiFi Ready | WiFi Ready |
| | DLNA | Y | Y |
| Others | Swivel Angle | — | — |
| | One-Sheet-of-Glass Design | — | — |

2. PCB Location & Function (2D model)

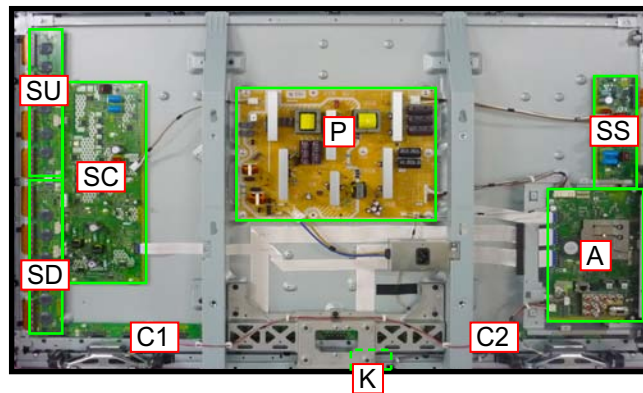
2. PCB Location & Function

U30 Series

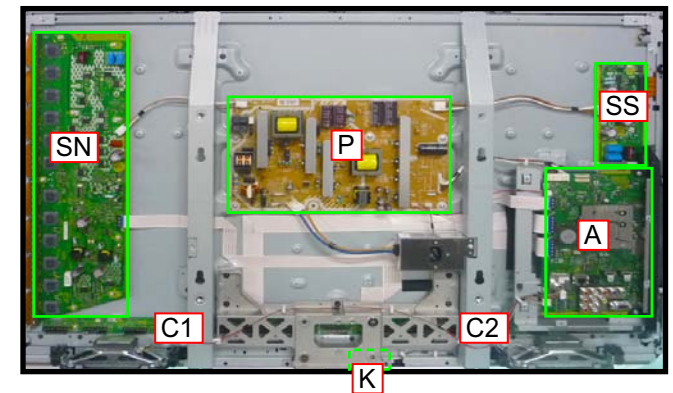
TH-P50U30M / P



TH-P46U30M / P



TH-P42U30M / P



| Board Name | Function | Parts Number |
|------------|---|--|
| P | Power Supply Non serviceable. P-Board should be exchanged for service. | N0AE5JK00009 |
| A | Main AV input, processing | TZTNP01MTUM (for TH-P50U30M), TZTNP01MWUP (for TH-P50U30P) |
| K | Remote receiver, Power LED, C.A.T.S sensor | TXN/K1NNUA42 |
| C1 | Data Driver (Lower Right) | TNPA5318 |
| C2 | Data Driver (Lower Center) | TNPA5319 |
| C3 | Data Driver (Lower Left) | TNPA5320 |
| SC | Scan Drive | TXNSC11JGK50 |
| SS | Sustain Drive | TXNSS11JGK50 |
| SU | Scan out (Upper) Non serviceable. SU-Board should be exchanged for service. | TXNSU11JGK50 |
| SD | Scan out (Lower) Non serviceable. SD-Board should be exchanged for service. | TXNSD11JGK50 |
| — | — | — |

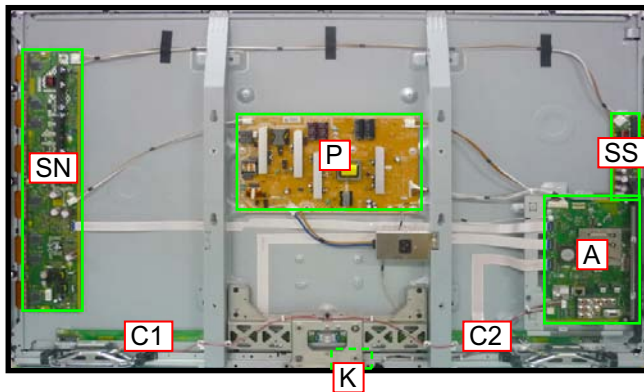
| Board Name | Function | Parts Number |
|------------|---|--|
| P | Power Supply Non serviceable. P-Board should be exchanged for service. | N0AE5JK00009 |
| A | Main AV input, processing | TZTNP01MUUM (for TH-P46U30M), TZTNP01MXUP (for TH-P46U30P) |
| K | Remote receiver, Power LED, C.A.T.S sensor | TXN/K1NNUA42 |
| C1 | Data Driver (Lower Right) | TNPA5316 |
| C2 | Data Driver (Lower Left) | TNPA5317 |
| — | — | — |
| SC | Scan Drive | TXNSC1MUUM46 |
| SS | Sustain Drive | TXNSS1MUUM46 |
| SU | Scan out (Upper) Non serviceable. SU-Board should be exchanged for service. | TXNSU1MUUM46 |
| SD | Scan out (Lower) Non serviceable. SD-Board should be exchanged for service. | TXNSD1MUUM46 |
| — | — | — |

| Board Name | Function | Parts Number |
|------------|--|--|
| P | Power Supply Non serviceable. P-Board should be exchanged for service. | N0AE5JK00008 |
| A | Main AV input, processing | TZTNP01MVUM (for TH-P42U30M), TZTNP01MYUP (for TH-P42U30P) |
| K | Remote receiver, Power LED, C.A.T.S sensor | TXN/K1NNUA42 |
| C1 | Data Driver (Lower Right) | TNPA5314 |
| C2 | Data Driver (Lower Left) | TXNC211FHK42 |
| — | — | — |
| SS | Sustain Drive | TXNSS11FHK42 |
| — | — | — |
| — | — | — |
| SN | Scan Drive | TXNSN11FHK42 |

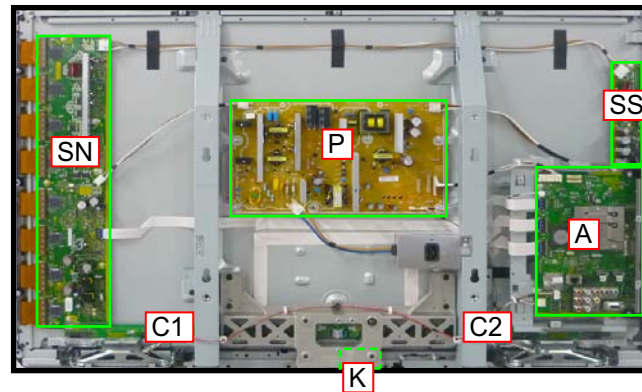
2. PCB Location & Function

X30 Series

TH-P50X30M / P



TH-P42X30M / P



| Board Name | Function | Parts Number |
|------------|---|---|
| P | Power Supply Non serviceable. P-Board should be exchanged for service. | N0AE5JK00007 |
| A | Main AV input, processing | TZTNP01MWUM (for TH-P50X30M), TZTNP01MZUP (for TH-P50X30P) |
| K | Remote receiver, Power LED, C.A.T.S sensor | TXN/K1NNUA42 |
| C1 | Data Driver (Lower Right) | TXNC111MGK50 |
| C2 | Data Driver (Lower Left) | TXNC211MGK50 |
| SS | Sustain Drive | TXNSS11MGK50 |
| SN | Scan Drive | TXNSN11MGK50 |

| Board Name | Function | Parts Number |
|------------|---|---|
| P | Power Supply Non serviceable. P-Board should be exchanged for service. | N0AE5JK00006 |
| A | Main AV input, processing | TZTNP01MXUM (for TH-P42X30M), TZTNP01NAUP (for TH-P42X30P) |
| K | Remote receiver, Power LED, C.A.T.S sensor | TXN/K1NNUA42 |
| C1 | Data Driver (Lower Right) | TXNC111HHK42 |
| C2 | Data Driver (Lower Left) | TXNC211HHK42 |
| SS | Sustain Drive | TXNSS11HHK42 |
| SN | Scan Drive | TXNSN11HHK42 |

3. PCB List (2D model)

3. PCB List

| | U30 series | | | | | | X30 series | | | |
|-------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Board | TH-P50U30M | TH-P50U30P | TH-P46U30M | TH-P46U30P | TH-P42U30M | TH-P42U30P | TH-P50X30M | TH-P50X30P | TH-P42X30M | TH-P42X30P |
| P | N0AE5JK00009 | N0AE5JK00009 | N0AE5JK00009 | N0AE5JK00009 | N0AE5JK00008 | N0AE5JK00008 | N0AE5JK00007 | N0AE5JK00007 | N0AE5JK00006 | N0AE5JK00006 |
| A | TZTNP01MTUM | TZTNP01MWUP | TZTNP01MUUM | TZTNP01MXUP | TZTNP01MVUM | TZTNP01MYUP | TZTNP01MWUM | TZTNP01MZUP | TZTNP01MXUM | TZTNP01NAUP |
| K | TXN/K1NNUA42 | TXN/K1NNUA42 | TXN/K1NNUA42 | TXN/K1NNUA42 | TXN/K1NNUA42 | TXN/K1NNUA42 | TXN/K1NNUA42 | TXN/K1NNUA42 | TXN/K1NNUA42 | TXN/K1NNUA42 |
| C1 | TNPA5318 | TNPA5318 | TNPA5316 | TNPA5316 | TNPA5314 | TNPA5314 | TXNC111MGK50 | TXNC111MGK50 | TXNC111HHK42 | TXNC111HHK42 |
| C2 | TNPA5319 | TNPA5319 | TNPA5317 | TNPA5317 | TXNC211FHK42 | TXNC211FHK42 | TXNC211MGK50 | TXNC211MGK50 | TXNC211HHK42 | TXNC211HHK42 |
| C3 | TNPA5320 | TNPA5320 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| SC | TXNSC11JGK50 | TXNSC11JGK50 | TXNSC1MUUM46 | TXNSC1MUUM46 | ---- | ---- | ---- | ---- | ---- | ---- |
| SS | TXNSS11JGK50 | TXNSS11JGK50 | TXNSS1MUUM46 | TXNSS1MUUM46 | TXNSS11FHK42 | TXNSS11FHK42 | TXNSS11MGK50 | TXNSS11MGK50 | TXNSS11HHK42 | TXNSS11HHK42 |
| SU | TXNSU11JGK50 | TXNSU11JGK50 | TXNSU1MUUM46 | TXNSU1MUUM46 | ---- | ---- | ---- | ---- | ---- | ---- |
| SD | TXNSD11JGK50 | TXNSD11JGK50 | TXNSD1MUUM46 | TXNSD1MUUM46 | ---- | ---- | ---- | ---- | ---- | ---- |
| SN | ---- | ---- | ---- | ---- | TXNSN11FHK42 | TXNSN11FHK42 | TXNSN11MGK50 | TXNSN11MGK50 | TXNSN11HHK42 | TXNSN11HHK42 |

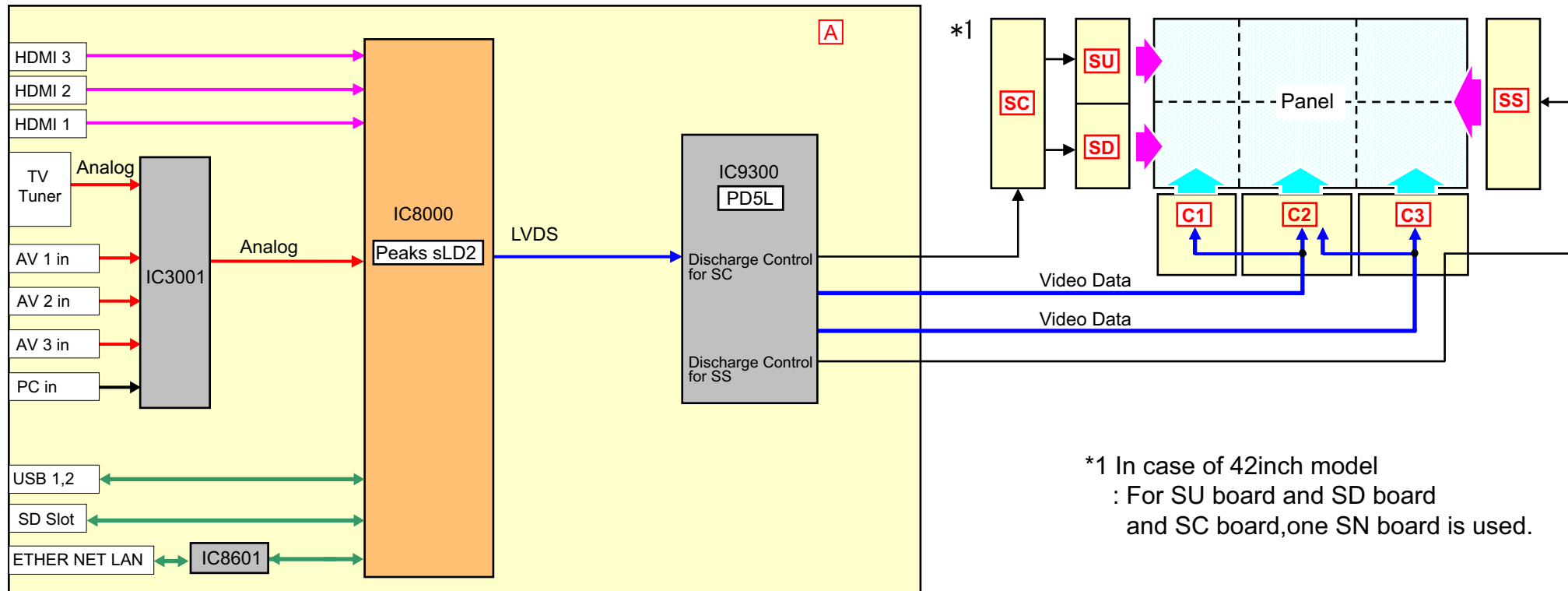
4. Block Diagram (2D Model)

4.Block Diagram

Signal Processing Circuit (1) U30 series

<PCB Function>

[e.g.TH-P50U30M]



*1 In case of 42inch model
: For SU board and SD board
and SC board,one SN board is used.

IC3001
: Video Switch
(Audio Switch)
IC8601
: ETHER NET I/F

IC8000
: Peaks sLD2
(Digital Video Processor)

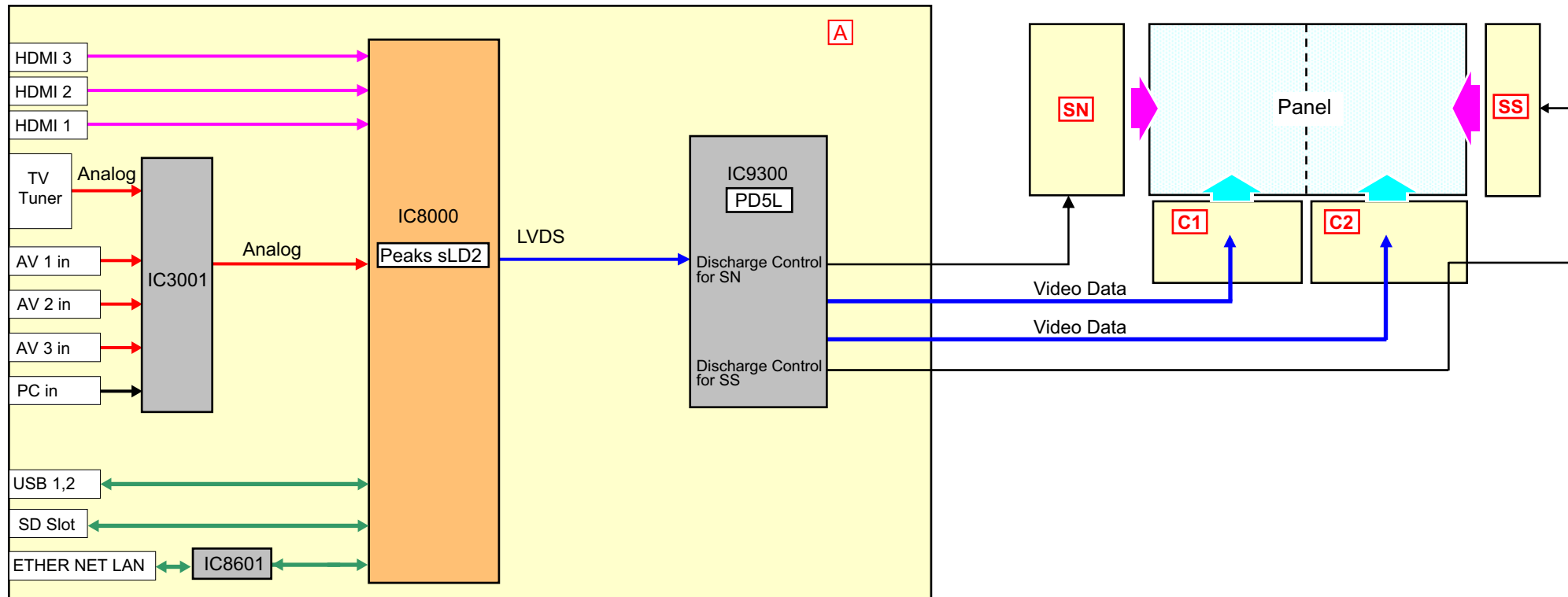
IC9300
: PD5L
[Sub Field Processor,
Discharge Control
Plasma AI]

4. Block Diagram

Signal Processing Circuit (2) X30 series

<PCB Function>

[e.g. TH-P50X30M]



IC3001
: Video Switch
(Audio Switch)

IC8601
: ETHER NET I/F

IC8000
: Peaks sLD2
(Digital Video Processor)

IC9300
: PD5L
[Sub Field Processor,
Discharge Control
Plasma AI]

5. Troubleshooting (2D model)

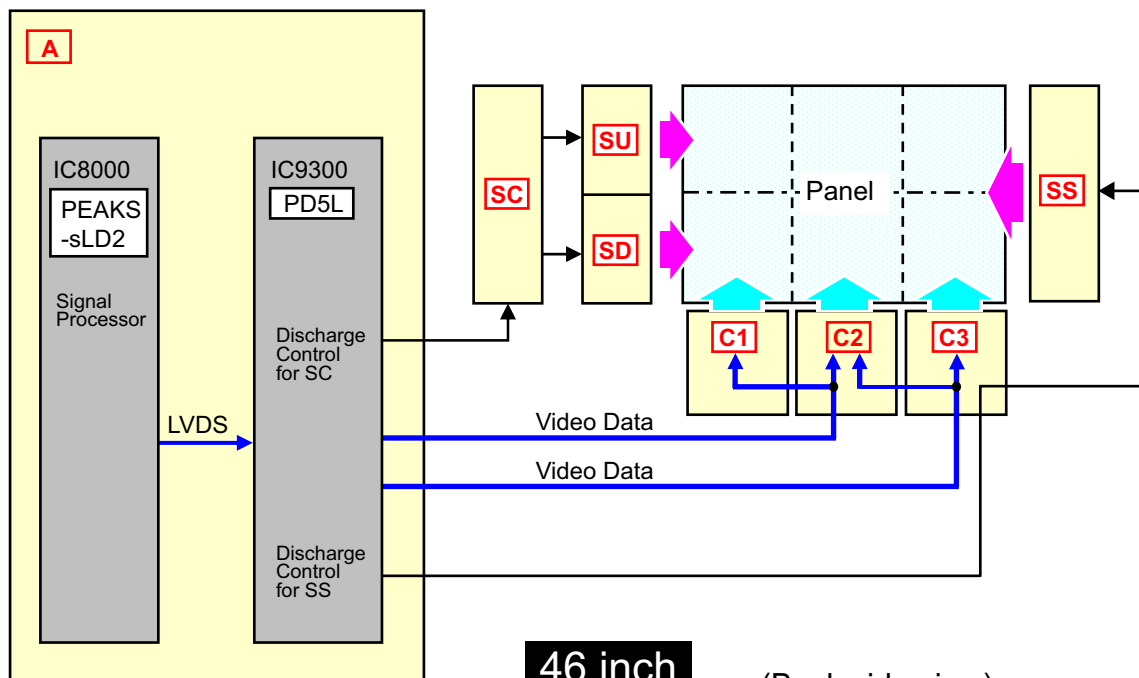
5.Troubleshooting for picture trouble

Relation of board and display area (1/2)

You know the possible defective board by picture trouble area.

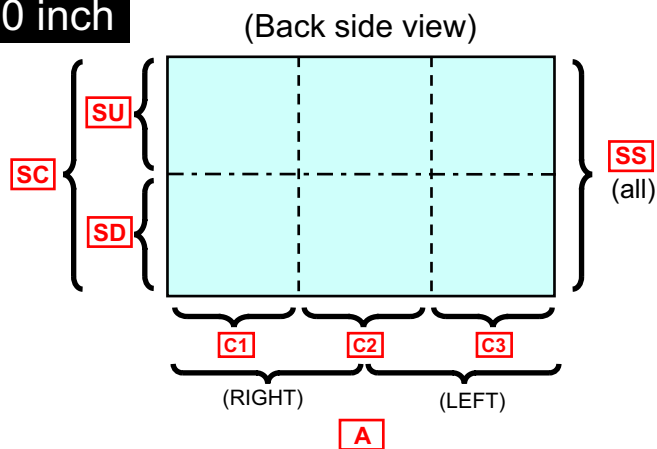
[In case of U30 series]
(Full HD models)

<Display device block diagram>

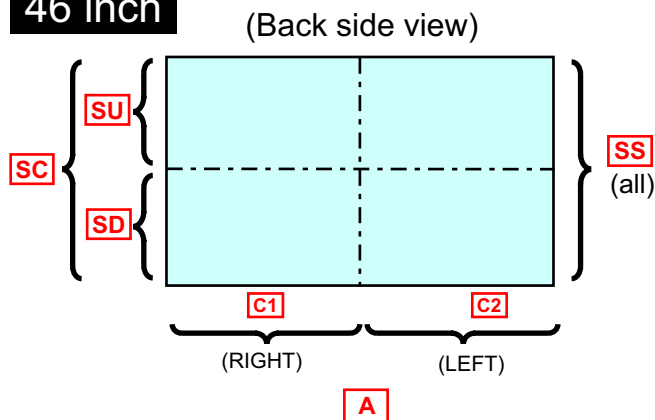


<Relation of defective board and picture trouble area >

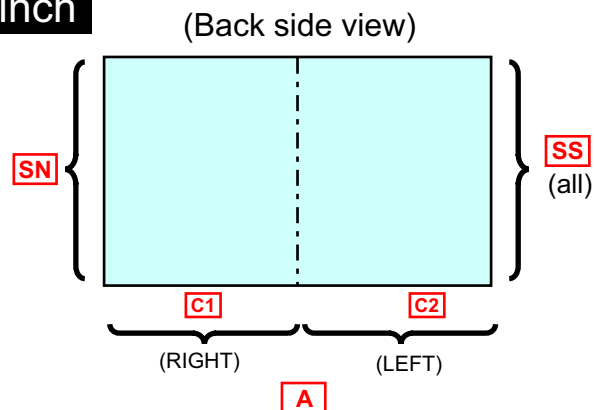
50 inch



46 inch



42 inch



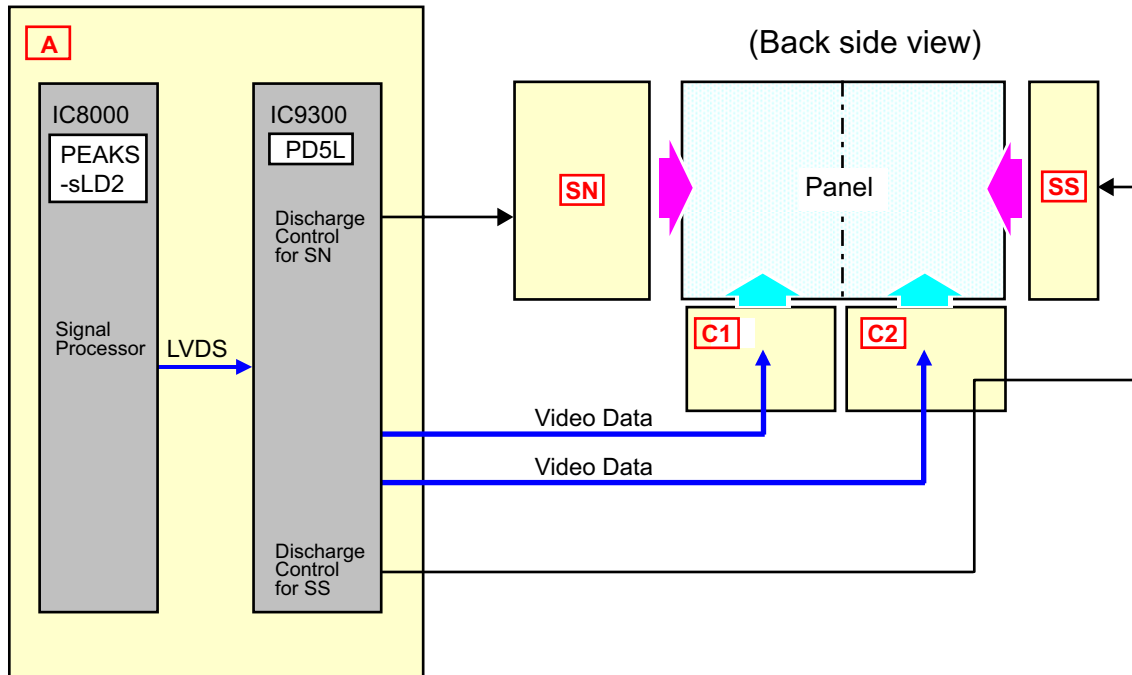
5.Troubleshooting for picture trouble

Relation of board and display area (2/2)

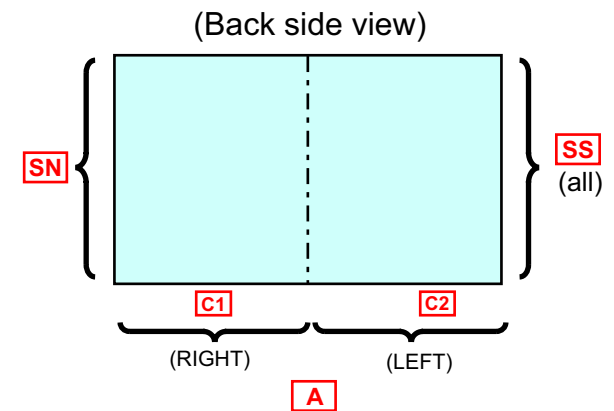
You know the possible defective board by picture trouble area.

[In case of X30 series]
(HD models)

<Display device block diagram>



<Relation of defective board and picture trouble area >



5.Troubleshooting for picture trouble

Picture trouble [diagnosis of vertical line]

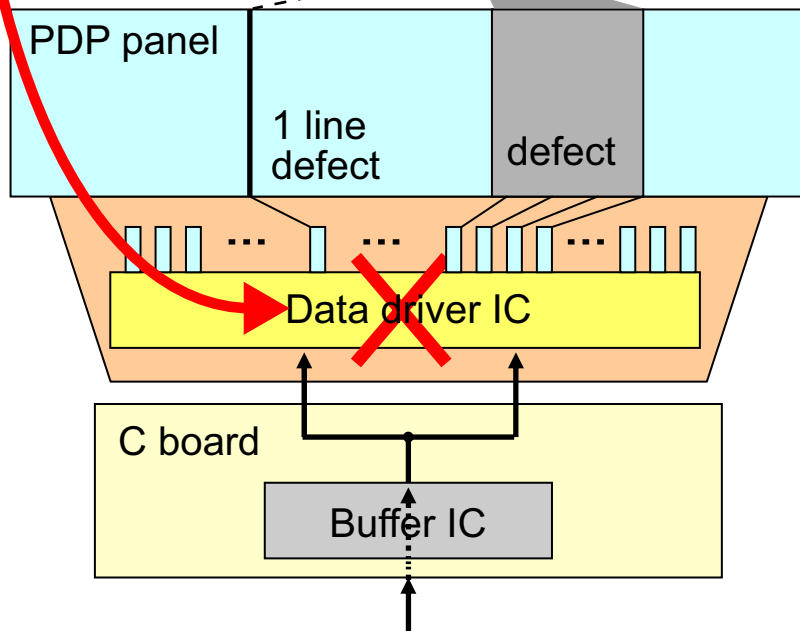
[In case of U30 / X30 series]

PDP panel defective (Data driver IC defective)

Width is narrower than FPC

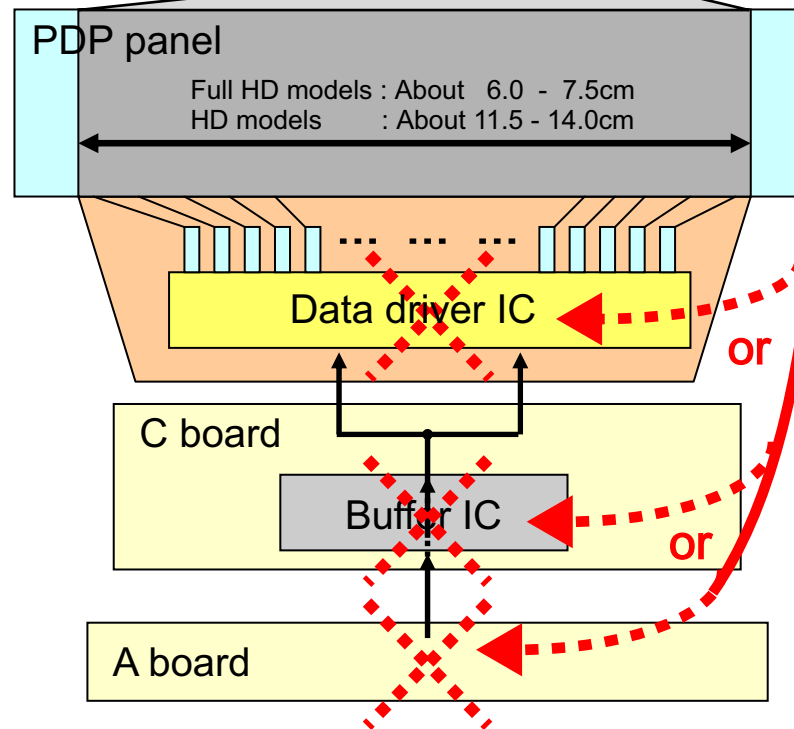


Data driver IC defect= PDP panel defect



Data driver IC or C or A board defective

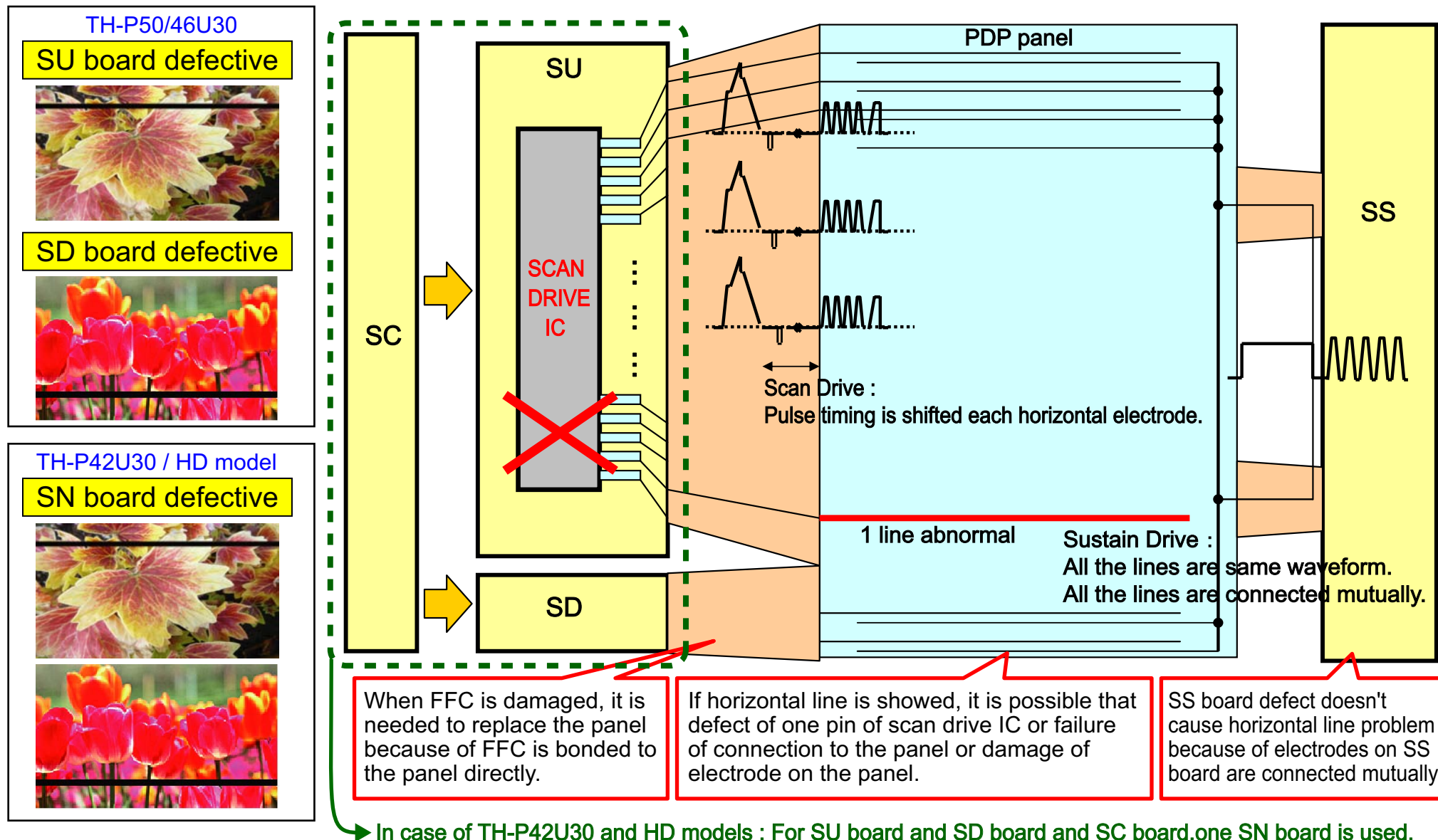
Width is same as FPC



5.Troubleshooting for picture trouble

Picture trouble [diagnosis of horizontal line]

[In case of U30 / X30 series]



5.Troubleshooting for picture trouble

Picture trouble [Function of diagnosis]

< Mirror function >

Mirror Function : Picture can be reversed left and right or up and down.

For vertical lines problems, this feature can help to determine if the problem is the A board or the panel.

If the position of the line/lines changes when performing this function, the A board is possibly defective.

The rear cover does not have to be removed to do this.

To enter the Mirror Function.

From the Service Mode Menu, Press 1 or 2 to select "OPTION".

Press 3 or 4 to select "MIRROR".

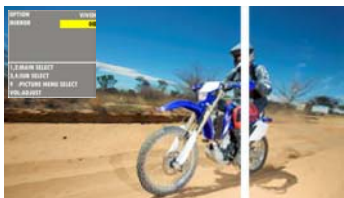
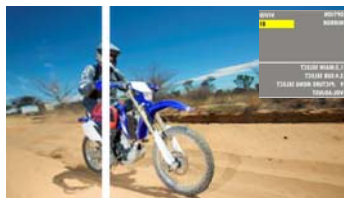
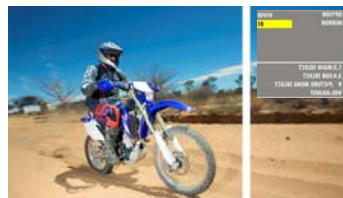

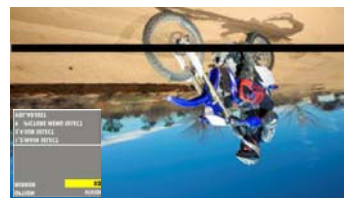

Press the VOLUME up or down button to change the Mirror's data.

Data = 00 Default data (Mirror function is off).

Data = 01 Picture is reversed left and right.

Data = 02 Picture is reversed up and down.

<How to diagnose by using "Mirror function">

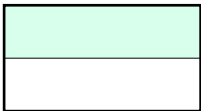
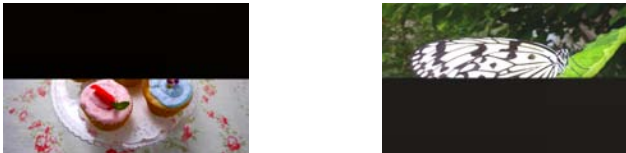

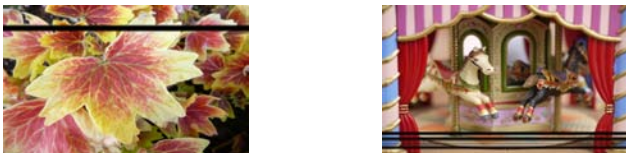
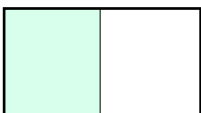

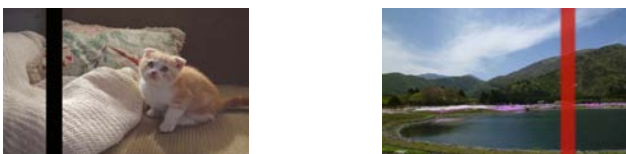
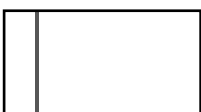
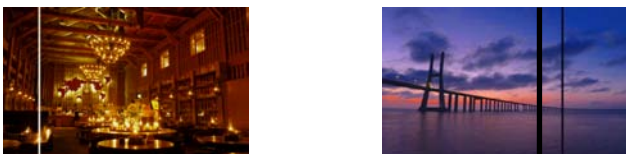

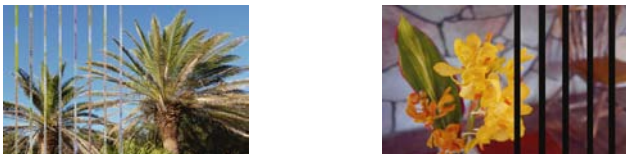
| | Data : 00 | Data : 01 | |
|-----------------|---|---|---|
| | | the picture & line : reverse | only the picture : reverse |
| Vertical Line |  |  |  |
| | | Defective Block : A board | Defective Block : Panel or C board |
| | Data : 00 | Data : 02 | |
| | | the picture & line : reverse | only the picture : reverse |
| Horizontal Line |  |  |  |
| | | Defective Block : A board | Defective Block : Panel or SD board * |

* In case of 42inch models and HD models : For SU board and SD board and SC board,one SN board is used.

5.Troubleshooting for picture trouble

Summary of picture trouble

< Some part of screen : U30 / X30 series >

| Symptom | Actual symptom | Defective board |
|--|---|---|
| Trouble at Upper or Lower half  |  | Over 46inch : SU / SD 42inch and HD model : SN |
| Horizontal line (Upper or Lower side)  |  | Over 46inch : SU / SD 42inch and HD model : SN or panel |
| Trouble at Left or Right half (TH-P50U30 : Left or Center or Right part)  | P46/42 U30 and HD model  P50U30 | TH-P46/42U30 and HD model : C1,C2 TH-P50U30 : C1-C3 |
| Vertical line (Width is same as FPC)  |  | C or A or PDP panel |
| Vertical line (Width is narrower than FPC)  |  | PDP panel |
| Regular bar  |  | A |

5.Troubleshooting for picture trouble

Diagnosis by Test Pattern

<Model>

U30, X30 series

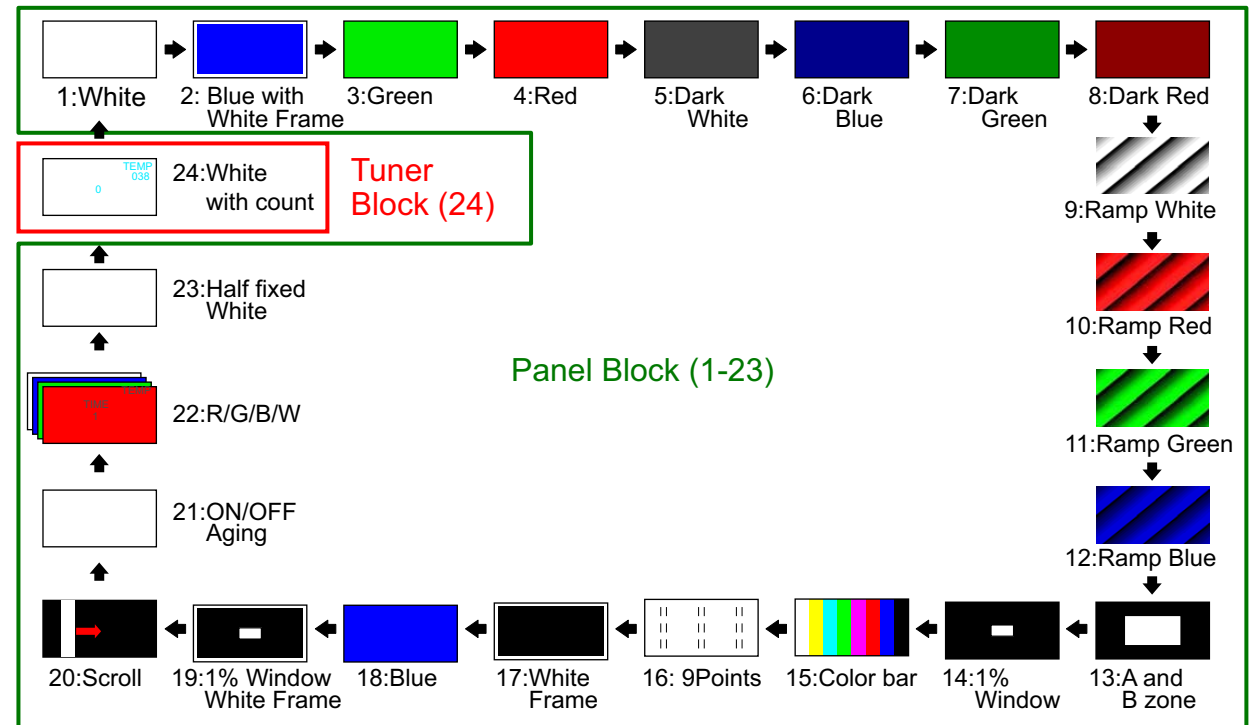
<Symptom>

Picture Noise, Full Vertical Line, Abnormal color

<How to enter the Test Pattern>

1. Press the "**VOLUME -**" on the TV set and push "**i**" button of remote controller 3 times at the same time.
2. After this procedure, you can enter "Service Mode" and select "**AGING**", then "Test pattern" will appear.
3. Push "3" button of Remote Controller to select the test pattern mode to forward.
4. Push "4" button of Remote Controller to select the test pattern mode to reverse.

<Test Pattern (Normal)>



<Diagnosis>

How to diagnose by using test pattern




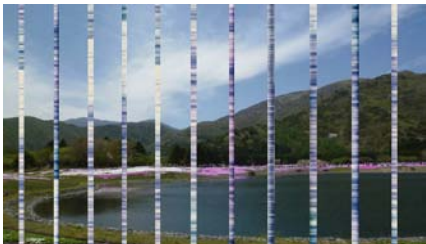



Abnormal picture
(Picture Noise, Full Vertical Line, Abnormal color)

| Test pattern (1-23) | Defective Block (Board) |
|---------------------|--------------------------------|
| Abnormal | Panel Block (A Board or Panel) |
| Normal | Tuner Block (A Board) |

No picture

| Test pattern | Defective Block (Board) |
|--------------|--------------------------------|
| No picture | Panel Block (A Board or Panel) |
| O.K | Tuner Block (A Board) |

< All area of screen >

| Symptom | Actual symptom | Defective board |
|-----------------------------|---|---|
| Irregular Color |   | <div>A board</div> |
| All vertical line |   | <div>A board</div> |
| Abnormal electric discharge |    | <div> in case of P50/46U30 SC / SS board in case of P42U30 and HD model SN / SS board </div> |

6. No Power Troubleshooting (When LED doesn't Blink)

[Model]

TH-P50/46/42U30M, TH-P50/42X30M

TH-P50/46/42U30P, TH-P50/42X30P

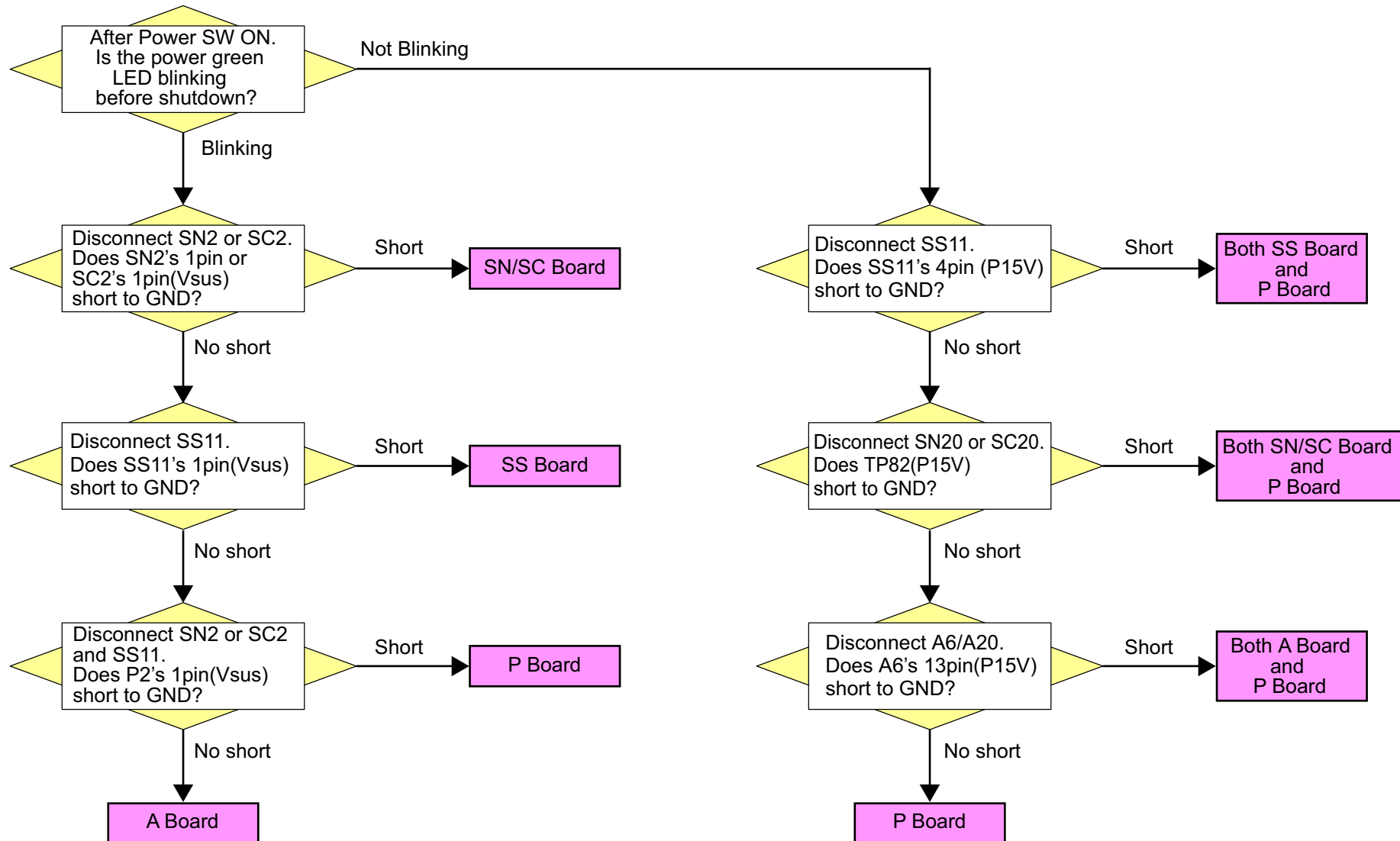
| | Power LED error code | Contents | Check points |
|---|---|---|---|
| 1 | Power LED is Off (No picture/No sound) | P-board abnormal Vsus:voltage down P15V:voltage down F15V:voltage down | P-board SN/SC-board SS-board A-board |
| 2 | Power LED is green (No picture/No sound) | P15V:voltage down | P-board SN/SC-board SS-board A-board |

Troubleshooting Flowcharts
: refer to 24 page, 25 page

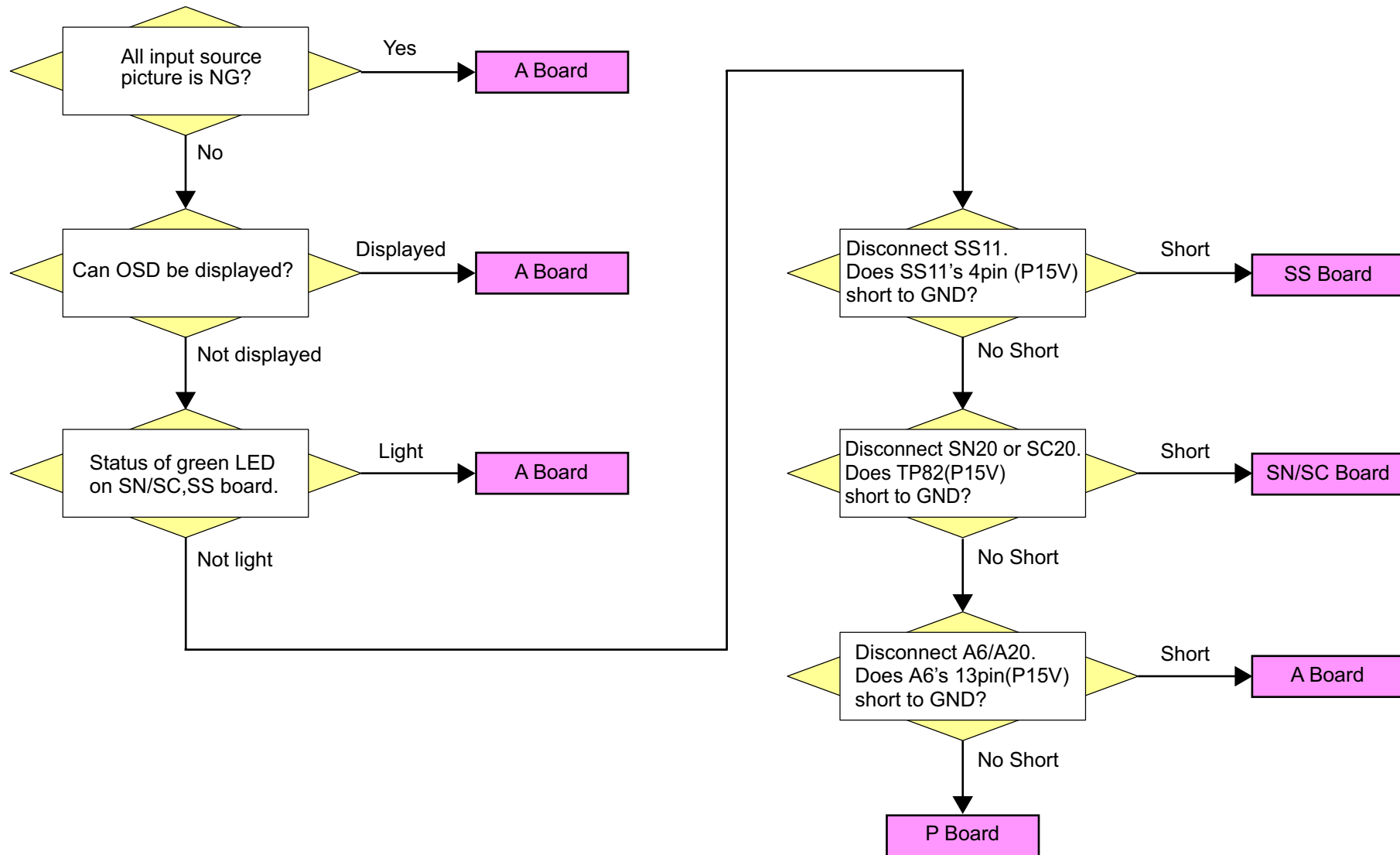
[Model]

TH-P50/46/42U30M, TH-P50/42X30M, TH-P50/46/42U30P, TH-P50/42X30P

< 1. Power LED is Off : No Picture, No Sound >



< 2. Power LED is green : No Picture, No Sound >



7. Case Example of Picture Trouble

7. Case Example of Picture Trouble

[1] Model : 2011 model

[2] Symptom : Rainbow vertical bar

[3] Defective parts :

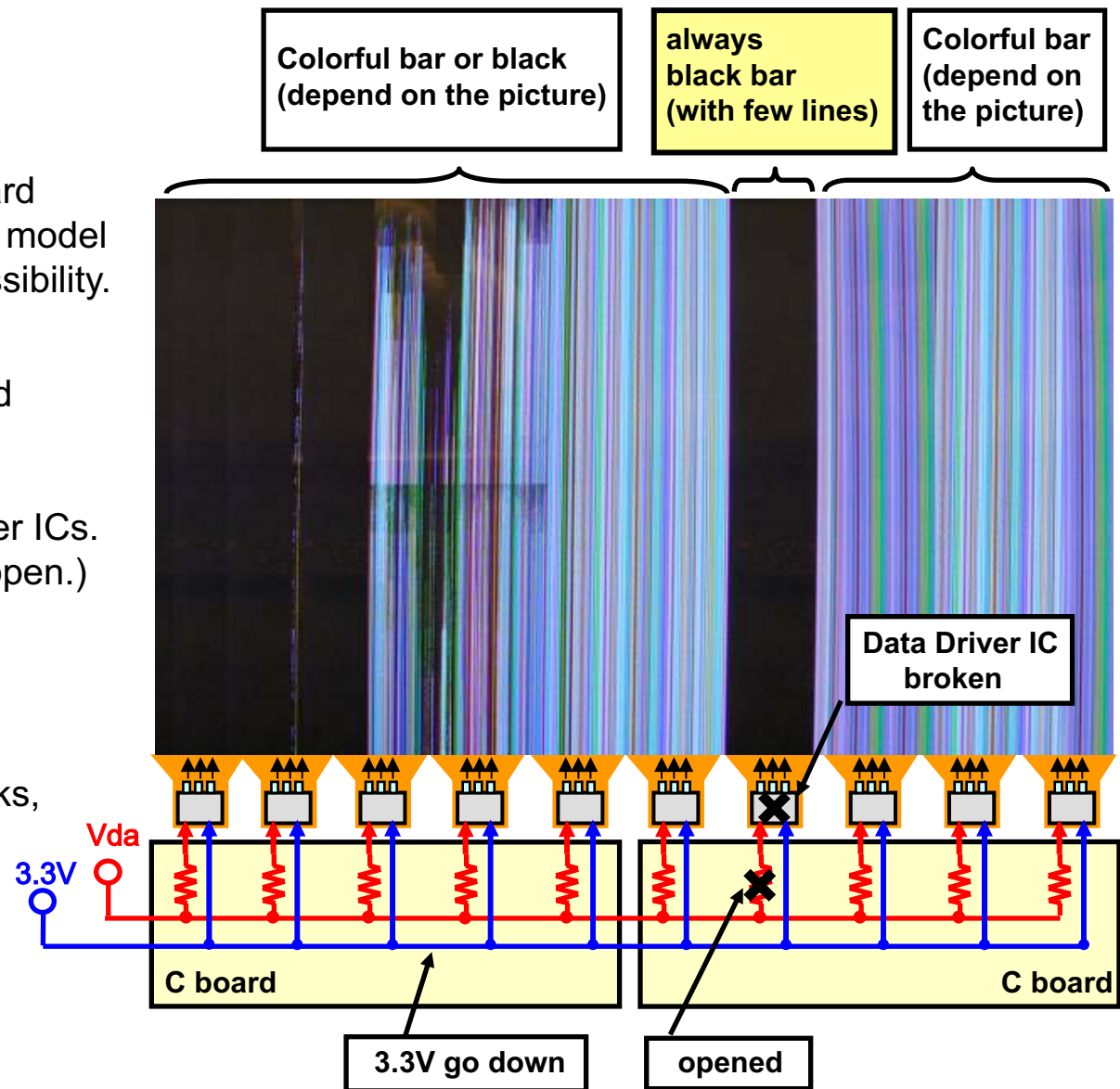
This symptom is very likely to be the A board defect for the previous model, but for 2011 model the Panel and C board defect is a high possibility.

[4] Summary :

If one of the Data Driver IC is defective and 3.3V go down, the other Data Driver ICs don't work correctly.
Because 3.3V is common for all Data Driver ICs. (Vda line is isolated due to resistor being open.)

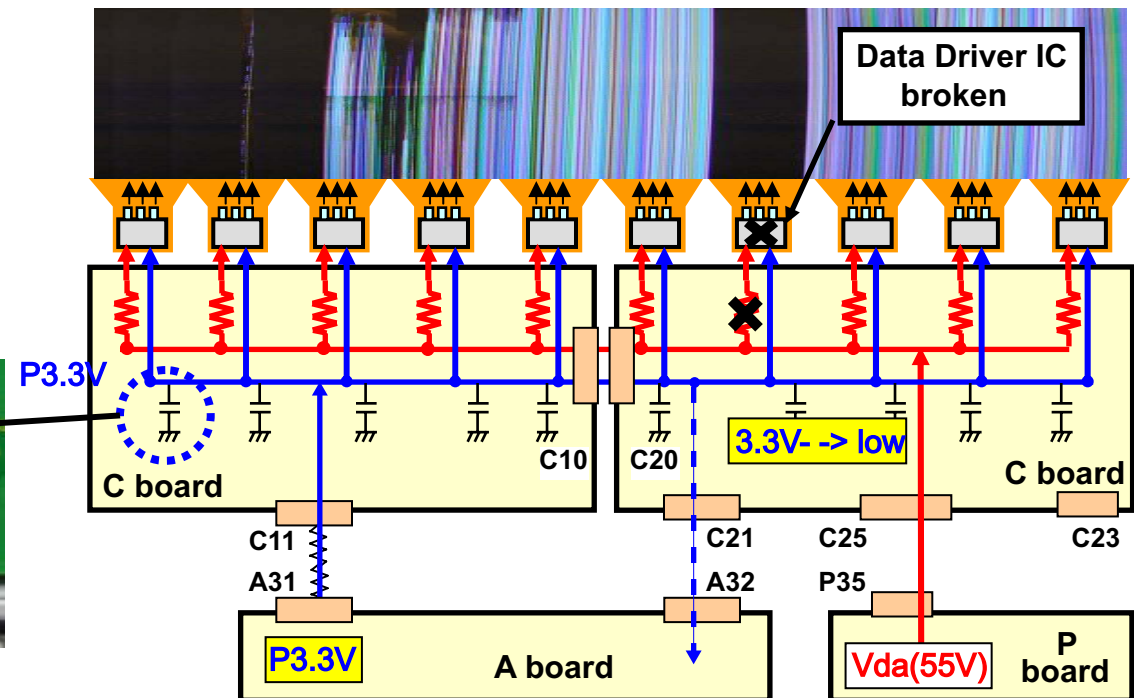
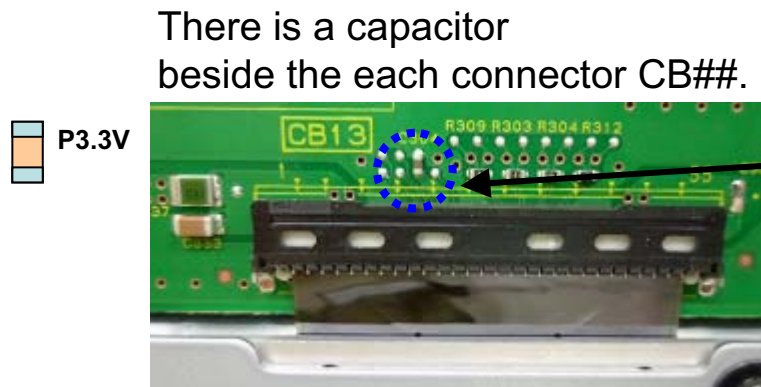
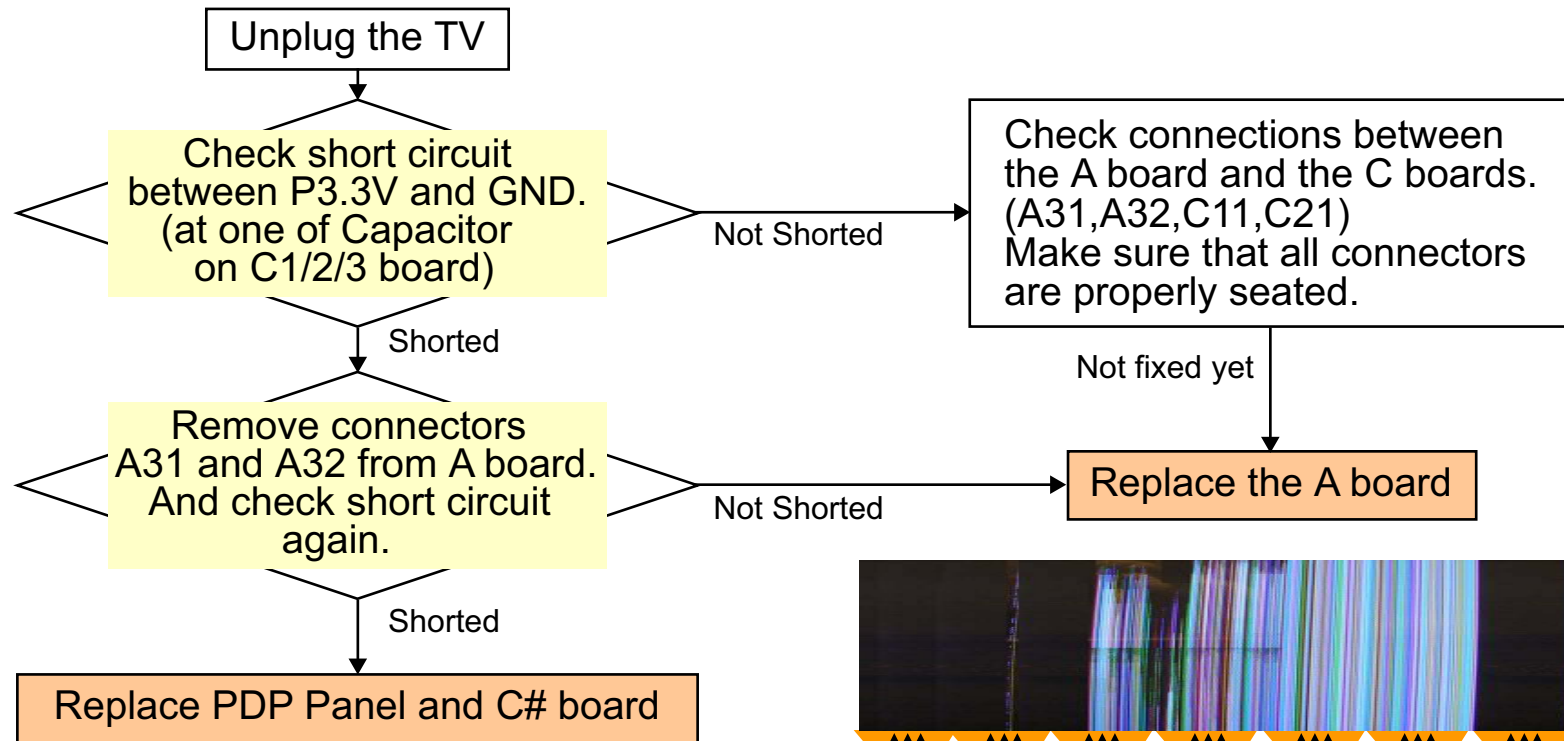
[5] Check point (Trouble shoot) :

Check by displaying some images.
If the position (length) of colorful bars change and there are some black bar blocks, the data driver IC is defective.
If there is no black bar block, check the connection of cables between A and C board.
If trouble still persists, the A board could be defective.



7.Case Example of Picture Trouble

[6] Detail Troubleshoot : Short check of the P3.3V line



7.Case Example of Picture Trouble

[7] Symptom example (another image)

Normal Image



Defective unit

